

Does Intrinsic Motivation Fuel the Prosocial Fire? Motivational Synergy in Predicting Persistence, Performance, and Productivity

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Researchers have obtained conflicting results about the role of prosocial motivation in persistence, performance, and productivity. To resolve this discrepancy, I draw on self-determination theory, proposing that prosocial motivation is most likely to predict these outcomes when it is accompanied by intrinsic motivation. Two field studies support the hypothesis that intrinsic motivation moderates the association between prosocial motivation and persistence, performance, and productivity. In Study 1, intrinsic motivation strengthened the relationship between prosocial motivation and the overtime hour persistence of 58 firefighters. In Study 2, intrinsic motivation strengthened the relationship between prosocial motivation and the performance and productivity of 140 fundraising callers. Callers who reported high levels of both prosocial and intrinsic motivations raised more money 1 month later, and this moderated association was mediated by a larger number of calls made. I discuss implications for theory and research on work motivation.

Keywords: prosocial motivation, intrinsic motivation, persistence, job performance, work productivity

Why do employees go above and beyond the call of duty to persist in performing their work effectively and productively? Organizational scholars have begun to highlight prosocial motivation—the desire to benefit other people—as an important answer to this question. Researchers have argued that prosocial motivation facilitates enhanced persistence, performance, and productivity by enabling dedication to a cause (Thompson & Bunderson, 2003) or moral principle (Shamir, 1990), a commitment to the people who benefit from one's efforts (Grant, 2007), and a willingness to accept and utilize negative feedback (Meglino & Korsgaard, 2004). Indeed, a number of studies using different conceptualizations and measures related to prosocial motivation suggest that prosocial motivation is associated with higher levels of persistence, performance, and productivity across various tasks, jobs, and extrarole behaviors (e.g., Bing & Burroughs, 2001; Brewer & Selden, 1998; Grant et al., 2007; Korsgaard, Meglino, & Lester, 1997; Naff & Crum, 1999; Rioux & Penner, 2001; see also Ilies, Scott, & Judge, 2006).

However, several studies have returned less encouraging results, suggesting that particular forms of prosocial motivation are not

significantly related to job performance evaluations (Alonso & Lewis, 2001) or the performance of organizational citizenship behaviors (Konovsky & Organ, 1996). One explanation for these conflicting results is that researchers have overlooked an important dimension along which prosocial motivation varies. Self-determination theory suggests that prosocial motivation can be based on different levels of autonomous regulation; the desire to benefit others can be autonomously supported by feelings of identification and value congruence or can be coerced by feelings of pressure and obligation (Gagné & Deci, 2005; Ryan & Connell, 1989). This distinction may have critical implications for understanding whether and when prosocial motivation promotes persistence, performance, and productivity.

In this article, I build on this core insight to develop and test a contingency perspective on prosocial motivation. Drawing on self-determination theory, I propose that prosocial motivation is most likely to enhance persistence, performance, and productivity when it is accompanied by intrinsic motivation. Two studies of firefighters and fundraising callers provide support for the proposed moderating role of intrinsic motivation, demonstrating a synergistic interaction of prosocial and intrinsic motivations in predicting higher levels of persistence, performance, and productivity. Together, the studies advance existing knowledge about the boundary conditions of prosocial motivation and fill a gap in self-determination theory and research about the interactions of intrinsic motivation with other forms of regulation.

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Intrinsic and Prosocial Motivations

Motivation is a foundational topic in psychology and organizational studies. Because it describes the reasons that drive actions, an understanding of motivation is central to explaining both individual and organizational behavior (e.g., Mitchell & Daniels, 2003). Motivation refers to the psychological pro-

cesses that direct, energize, and sustain action (e.g., Latham & Pinder, 2005) or “an inner desire to make an effort” (Dowling & Sayles, 1978, p. 16).

Motivation researchers have long recognized that this desire to make an effort can derive from different sources (e.g., Herzberg, 1966; Porter & Lawler, 1968; Staw, 1977). Early in the 20th century, scholars and practitioners believed that external controls, incentives, punishments, and rewards were necessary to motivate persistence, performance, and productivity (see Heath, 1999; Steers, Mowday, & Shapiro, 2004). The advent of the human-relations movement paved the way for a new view of motivation. Rather than assuming that employees dislike work, scholars began to propose that work can be inherently interesting and enjoyable (e.g., Herzberg, 1966; McGregor, 1960). This view is developed in and represented by theories of self-determination and intrinsic motivation (e.g., Deci, 1975; Deci & Ryan, 1985). Intrinsic motivation refers to the desire to expend effort based on interest in and enjoyment of the work itself (Amabile, Hill, Hennessey, & Tighe, 1994; Gagné & Deci, 2005; Ryan & Deci, 2000). Intrinsic motivation is typically contrasted with extrinsic motivation—the desire to expend effort to obtain outcomes external to the work itself, such as rewards or recognition (Amabile, 1993; Brief & Aldag, 1977).

Prosocial motivation is the desire to expend effort to benefit other people (Batson, 1987). Like intrinsic motivation (Amabile et al., 1994), prosocial motivation has been conceptualized in both traitlike and statelike terms. As a relatively enduring individual difference, prosocial motivation is reflected in the personality trait of agreeableness (Graziano, Habashi, Sheese, & Tobin, in press), dispositions toward empathy and helpfulness (Penner, Dovidio, Piliavin, & Schroeder, 2005), and values of concern for others (De Dreu, 2006; Meglino & Korsgaard, 2004; Perry & Hondeghem, in press; Schwartz, 1992). As a more temporary psychological state, prosocial motivation involves a momentary focus on the goal of protecting and promoting the welfare of other people, which is typically prompted by contact with others who need help (Batson, 1987; Grant, 2007).

Differentiating Prosocial and Intrinsic Motivations

Because prosocial and intrinsic motivations have largely been studied in separate literatures, researchers have made few attempts to integrate understandings of the two motivations. What is the relationship between the two motivations? On one hand, researchers have often assumed that prosocial motivation is a specific form of intrinsic motivation. For instance, job design researchers have classified opportunities to benefit others as intrinsic rewards (Herzberg, Mausner, & Snyderman, 1967) that increase intrinsic motivation (Hackman & Oldham, 1976).

On the other hand, the two forms of motivation reflect different scholarly assumptions about the drivers of motivation. Intrinsic motivation takes a hedonic perspective by emphasizing pleasure and enjoyment as drivers of effort, whereas prosocial motivation takes a eudaimonic perspective by emphasizing meaning and purpose as drivers of effort (Kahn, 1990; McGregor & Little, 1998; Ryan & Deci, 2001; Waterman, 1993). Moreover, psychologists have demonstrated that prosocial and intrinsic motivations involve different reasons for expending effort. For intrinsically motivated

individuals, effort is based on interest and enjoyment; for prosocially motivated individuals, effort is based on a desire to benefit others (Ryan & Connell, 1989). This basic distinction highlights three important differences between the two forms of motivation: self-regulation (autonomous vs. introjected/identified), goal directedness (process vs. outcome), and temporal focus (present vs. future).

First, prosocial and intrinsic motivations involve different levels of autonomy in self-regulation (Ryan & Deci, 2000). When intrinsically motivated, employees feel naturally drawn, or pulled, toward completing their work. The decision to expend effort is based on personal enjoyment and is thus fully volitional, self-determined and autonomous (Kehr, 2004). When prosocially motivated, employees are more likely to push themselves toward completing their work. The decision to expend effort is less autonomous, as it is based more heavily on conscious self-regulation and self-control to achieve a goal (Gagné & Deci, 2005). Prosocial motivation is therefore characterized not as a state of pure intrinsic motivation, but instead as a state of introjected or identified regulation. Employees are driven not by inherent interest in the work itself, but rather by introjected goals of avoiding guilt and protecting self-esteem or by identified goals of fulfilling core values and identities (Ryan & Deci, 2000; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001).

Second, prosocial and intrinsic motivations differ in terms of goal directedness. When intrinsically motivated, employees are process focused—they see the work as an end in and of itself (Amabile, 1993; Bono & Judge, 2003; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). When prosocially motivated, employees are outcome focused—they see the work as a means to the end goal of benefiting others (Grant, 2007). Put differently, intrinsic motivation is a paratelic state in which the work is inherently enjoyable, whereas prosocial motivation is a telic state in which the work is instrumental to a purpose or goal (Apter, 1984; Csikszentmihalyi & Csikszentmihalyi, 1988).

Third, the previous distinction highlights that prosocial and intrinsic motivations differ in terms of temporal focus. When intrinsically motivated, employees are present focused—they are concerned with the experience of performing the work itself (R. W. Quinn, 2005). When prosocially motivated, employees are future focused—they are concerned with achieving a meaningful outcome upon completing the work (Batson, 1998).

To illustrate, consider the case of a university professor presenting a lecture to students. When intrinsically motivated, the teacher's effort is based on enjoyment of the task of lecturing, which provides joy and pleasure in the process of performing. When prosocially motivated, the teacher's effort is based on a desire to educate students, which provides meaning and fulfillment in the outcome of student learning. In summary, prosocial and intrinsic motivations differ along at least three dimensions. Intrinsic motivation involves autonomous self-regulation and a focus on a process in the present. Prosocial motivation involves self-regulation introjected or identified with values and a focus on an outcome in the future. These distinctions suggest that the two motivations can be understood as relatively independent. As such, it is possible for the two motivations to interact, a possibility that is central to the present research.

Hypotheses

How do intrinsic and prosocial motivations interact to influence persistence, performance, and productivity? Persistence refers to the amount of time that employees invest in their efforts (e.g., Dweck & Gilliard, 1975; Sandelands, Brockner, & Glynn, 1988). Performance refers to the degree to which employees' behaviors achieve organizational objectives (e.g., Beal, Cohen, Burke, & McLendon, 2003; Campbell, 1990; McCloy, Campbell, & Cudeck, 1994; Motowidlo, 2003). Productivity describes an outcome of performance—the quantity of output that results from performance behaviors as well as external contextual and opportunity factors (e.g., Blumberg & Pringle, 1982; Schmidt & Hunter, 1983).

In this section, I develop the hypothesis that intrinsic motivation strengthens the positive association between prosocial motivation and persistence, performance, and productivity. The central logic underlying this hypothesis is that prosocial motivation takes on different degrees of autonomous regulation depending on the level of intrinsic motivation. Employees can be motivated to benefit others because they want to help or because they feel that they have to help (Cunningham, Steinberg, & Grey, 1980; Gagné, 2003). As Ryan and Connell (1989, p. 757) explained, "A person can have reasons for acting prosocially that can be variously construed as external or introjected, or as outcomes of identifications." When intrinsic motivation is high, prosocial motivation is characterized by identified regulation: employees feel that completing their tasks is beneficial to their own self-selected goals, as they enjoy the process of working and value the outcome of helping others (Gagné & Deci, 2005). When intrinsic motivation is low, prosocial motivation is characterized by introjected regulation: employees do not enjoy the process of working, but they put pressure on themselves to do so in order to help others (Ryan & Connell, 1989).

Accordingly, self-determination theory suggests that when intrinsic motivation is high, prosocial motivation will be positively associated with persistence, performance, and productivity. When intrinsic motivation is present, because employees enjoy the process of completing their tasks, they will feel volition, autonomy, and free choice in their efforts to benefit others, experiencing prosocial motivation as identified regulation (Ryan & Connell, 1989). Thus, when intrinsic motivation is high, prosocial motivation will increase effort by providing an important outcome goal—helping others—for employees to pursue (Gagné & Deci, 2005). As a result, prosocial motivation will increase employees' willingness to invest time and energy in their tasks, persisting to perform them effectively and productively. Indeed, recent research on self-determination theory suggests that intrinsically motivated efforts to benefit others enable employees to fulfill their basic psychological needs for autonomy, competence, and relatedness (Sheldon, Arndt, & Houser-Marko, 2003). Employees experience autonomy in acting freely to benefit others, competence in successfully helping others, and relatedness in connecting their actions to outcomes that matter in the lives of other people (Grant, 2007). Accordingly, when intrinsic motivation is high, prosocial motivation is likely to promote high levels of persistence, performance, and productivity.

On the other hand, self-determination theory suggests that when intrinsic motivation is low, prosocial motivation will be less positively associated with persistence, performance, and productivity.

In the absence of intrinsic motivation, because employees do not enjoy the process of working, they will feel pressured to benefit others, experiencing prosocial motivation as introjected regulation (Ryan & Connell, 1989; see also Cunningham et al., 1980). A core premise of self-determination theory is that employees prefer to be originators of their own behavior rather than pawns of the will of others (deCharms, 1968; Deci, 1971; Deci, Koestner, & Ryan, 1999). The experience of pressure threatens employees' abilities to fulfill their basic psychological needs for autonomy (Ryan & Deci, 2000). Employees can respond to this pressure in one of two ways. First, employees can escape the pressure by directly reducing their engagement and effort levels (Bazerman, Tenbrunsel, & Wade-Benzoni, 1998). This self-determined choice will enable them to regain their feelings of autonomy at the expense of persistence, performance, and productivity. Second, employees can succumb to the pressure by expending additional effort to fulfill their obligations to help others. As employees feel pressured to contribute over and above what they find interesting and enjoyable, their feelings of autonomy will be threatened (Gagné & Deci, 2005), and they will be more likely to experience stress and role overload (Bolino & Turnley, 2005). These psychological costs will undermine employees' capabilities to persist in performing their tasks effectively and productively. Thus, when intrinsic motivation is low, prosocial motivation is less likely to enhance persistence, performance, and productivity.

Hypothesis 1. Intrinsic motivation moderates the relationship between prosocial motivation and persistence, performance, and productivity. The higher the intrinsic motivation, the stronger the positive association between prosocial motivation and persistence, performance, and productivity.

Overview of the Present Research

To test these hypotheses, I conducted studies in two occupations—firefighting and fundraising—in which I expected prosocial motivation to be a psychologically meaningful variable. The first study provides an initial test of the interaction between prosocial and intrinsic motivations as a predictor of persistence (the number of overtime hours worked by municipal firefighters). The second study examines the interaction between prosocial and intrinsic motivations as a predictor of the performance and productivity of fundraising callers.

Study 1

Method

Participants and Procedure

Participants were 58 paid municipal firefighters (2 women, 56 men) at a fire department serving a community in the Midwest U.S. Municipal firefighting is a complex job (e.g., Peterson, Borman, Mumford, Jeannerete, & Fleishman, 1999). It requires extensive knowledge about service, safety, security, mechanics, medical treatment, and construction, as well as strong skills in coordination, critical thinking, problem-solving, monitoring, and judgment and decision-making. The training chief allocated time for firefighters to complete surveys during required monthly training sessions. I visited the organization, distributed consent forms,

and assured firefighters that their responses would be confidential and anonymous and would be shared only in aggregate form without any personally identifying information.

Measures

Unless otherwise indicated, all items used 7-point Likert-type scales with anchors of 1 (*disagree strongly*) to 7 (*agree strongly*).

Prosocial and intrinsic motivations. I measured prosocial and intrinsic motivations with items adapted from self-regulation scales developed by Ryan and Connell (1989). An introductory question asked, "Why are you motivated to do your work?". The surveys contained four items measuring each form of motivation. The four items for prosocial motivation were "Because I care about benefiting others through my work," "Because I want to help others through my work," "Because I want to have positive impact on others," and "Because it is important to me to do good for others through my work" ($\alpha = .90$). The four items for intrinsic motivation were "Because I enjoy the work itself," "Because it's fun," "Because I find the work engaging," and "Because I enjoy it" ($\alpha = .71$).

Persistence. For the outcome measure, 2 months after the surveys were completed, the training chief provided data on the number of overtime hours that firefighters had worked in the previous week. Overtime hours has been conceptualized as an indicator of persistence, as it measures the amount of time that employees invest in their work (Mitchell & Daniels, 2003). Firefighters were allowed to sign up for overtime hours in advance, thus demonstrating persistence.

Results

An exploratory factor analysis using principal axis factoring with maximum likelihood estimation and an oblique rotation examined whether the prosocial and intrinsic motivation items were distinct. The analysis revealed the expected two-factor solution (eigenvalues = 4.08 and 1.50, respectively), and the resulting prosocial and intrinsic motivation factors were positively correlated ($r = .41, p = .001$).

To test the hypothesis that the prosocial-intrinsic motivation interaction would predict overtime, I followed the procedures recommended by Aiken and West (1991; see also Cohen, Cohen, West, & Aiken, 2003). I mean-centered the prosocial and intrinsic motivation variables and multiplied the two centered variables to create a continuous interaction term. I then conducted ordinary least squares regression analyses predicting overtime from prosocial motivation, intrinsic motivation, and the interaction term. The analysis showed that prosocial motivation did not significantly predict overtime, $\beta = .02, t(54) = 0.14, p = .89$, but intrinsic motivation did, $\beta = .29, t(54) = 2.13, p = .04$, as did the interaction term, $\beta = .35, t(54) = 2.47, p = .02$. A hierarchical regression showed that the addition of the interaction term increased the variance explained in overtime significantly from $r^2 = .14 (f^2 = .16)$ to $r^2 = .22 (f^2 = .28)$, $F(1, 54) = 6.09, p = .02$.¹

Figure 1 displays the simple slopes for the relationship between prosocial motivation and overtime at one standard deviation above and below the mean of intrinsic motivation. Prosocial motivation was positively associated with overtime when intrinsic motivation was high ($\beta = .44$) but was negatively associated with overtime

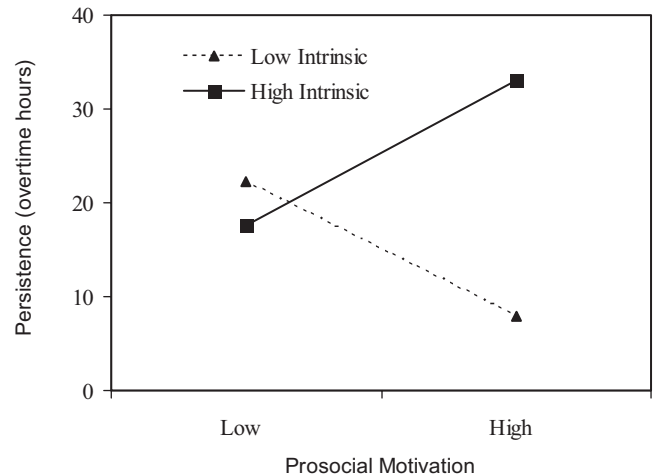


Figure 1. Study 1 regression slopes for overtime hours.

when intrinsic motivation was low ($\beta = -.53$). Firefighters with high levels of both prosocial and intrinsic motivations averaged 33.12 overtime hours per week, whereas all other firefighters averaged 19.78 overtime hours per week. Thus, intrinsic motivation moderated (strengthened) the association between prosocial motivation and overtime hours.

Discussion

The results provided general support for the role of intrinsic motivation in moderating the association between prosocial motivation and persistence. Firefighters who reported high levels of both prosocial and intrinsic motivations worked more overtime hours 2 months later. Although these results are promising, they are subject to at least three important limitations. First, the study focused on a small sample of employees in one occupation, raising questions about generalizability. Second, I was only able to obtain one outcome measure (overtime hours), which raises questions about applications to the domain of effectiveness. Does intrinsic motivation moderate the association between prosocial motivation and performance and productivity in a larger sample from a different occupation?

Third, an alternative explanation for the results is that intrinsic motivation is a reflection of job satisfaction. Whereas intrinsic motivation is a specific desire to expend effort based on enjoyment

¹ In light of the small sample size, I examined standardized *dfbeta* and Cook's *D* influence statistics to determine whether the interaction was dependent on a few cases. First, I used standardized *dfbetas* to assess the change in the interaction term's regression coefficient caused by deleting each case. After eliminating the standardized *dfbetas* with absolute values greater than $2 \div \sqrt{n}$ (Belsley, Kuh, & Welsch, 1980), or .26 in this sample, the interaction term was still statistically significant in the positive direction. Second, I used Cook's *D* to assess the multivariate change across regression coefficients caused by deleting each observation. After I reran the analyses excluding the three cases that exceeded the conventional cutoff point (Fox, 1991) of $4 \div (n-k-1)$, or 0.07 in this sample, the interaction term was still statistically significant in the positive direction. These analyses suggest that the interaction was robust even after eliminating influential cases.

of the tasks themselves (Amabile, 1993), job satisfaction is a more global attitude—an evaluative judgment about the extent to which one’s overall work experiences meet one’s expectations or standards (Harrison, Newman, & Roth, 2006; Warr, 2007; Weiss, 2002). It may not be the experience of autonomous regulation and self-determination provided by intrinsic motivation, but rather a generally favorable job attitude, that strengthens the prosocial motivation-behavior relationship. According to this perspective, job satisfaction might lead employees to perceive other people in their work environments in a more favorable light, increasing the willingness of prosocially motivated employees to expend additional effort in order to benefit these people (e.g., George, 1991).

Study 2

To address these three issues, I conducted a second study. I examined intrinsic and prosocial motivations as predictors of the performance and productivity of fundraising callers and measured job satisfaction as an alternative explanation of the results.

Method

Participants

Participants were 140 paid fundraising callers (71 women, 69 men) at a call center at a public university in the Midwestern U.S. All callers worked the same number of hours and shifts and were responsible for contacting prospective alumni donors in order to persuade them to give money to the university. The callers thus provided a service to university faculty, staff, and students, who benefited from the funds raised, and to alumni, who were updated on recent events and activities at the university. Callers accessed alumni names and phone numbers from a computerized database provided by managers. They were required to use a standardized script to make their pitches, which instructed them to ask for donations three times over the course of a single call before hanging up and turning to the next call.

Procedure

Managers provided time for callers to complete surveys during their regularly scheduled shifts. I arrived at the organization, distributed consent forms to the callers, and explained that responses would be confidential, reported only in the aggregate. I then distributed surveys to the callers to measure prosocial motivation, intrinsic motivation, and job satisfaction. One month after

callers completed their surveys, managers provided objective measures of their performance and productivity.

Measures

Unless otherwise indicated, all items used 7-point Likert-type scales with anchors of 1 (*disagree strongly*) to 7 (*agree strongly*).

Prosocial and intrinsic motivations. Callers completed surveys measuring prosocial motivation ($\alpha = .91$) and intrinsic motivation ($\alpha = .93$) using the same items as in Study 1.

Job satisfaction. Job satisfaction was measured with a four-item scale developed by R. P. Quinn and Shepard (1974; see also Eisenberger, Cummings, Armeli, & Lynch, 1997).

Performance and productivity. Managers in the call center provided objective data for performance and productivity. Performance was measured by the number of calls that callers made in a 1-week interval, which is one important element of performing the job effectively. Productivity was measured by output, which was defined as the amount of donation money that callers raised in the same interval. Managers supplied both measures in a 1-week interval 1 month after the survey data were collected. This week-long interval was appropriate given that callers were drawing from a common pool of prospective alumni donors, signifying that different callers had similar opportunities to perform.

Results

Means, standard deviations, reliability coefficients, and correlations for the measures appear in Table 1. To ensure that the constructs were distinct, I conducted confirmatory factor analyses using EQS software (version 6.1; Bentler, 1995) with maximum likelihood estimation procedures, following recommendations in the measurement literature (e.g., Bentler & Dudgeon, 1996; Kline, 1998). A one-factor model displayed very poor fit with the data, $\chi^2(20, N = 140) = 312.82$, normed fit index (NFI) = .67, nonnormed fit index (NNFI) = .56, comparative fit index (CFI) = .68, standardized root mean square residual (SRMR) = .168. In contrast, the expected two-factor model displayed very good fit with the data, $\chi^2(19, N = 140) = 60.84$, NFI = .94, NNFI = .93, CFI = .96, SRMR = .040. Supporting the distinctiveness of the prosocial and intrinsic motivation measures, a chi-square difference test showed that the model fit improved significantly from the one-factor to two-factor model, $\chi^2(1, N = 140) = 251.98, p < .001$.

I conducted additional confirmatory factor analyses including the four job satisfaction items to examine whether intrinsic moti-

Table 1
Study 2 Means, Standard Deviations, and Correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Performance (calls made)	48.65	40.48	—				
2. Productivity (dollars raised)	436.73	565.56	.58***	—			
3. Intrinsic motivation	3.76	1.54	.10	.19*	(.93)		
4. Prosocial motivation	4.48	1.41	.08	.11	.55***	(.91)	
5. Job satisfaction	4.90	1.34	.10	.18*	.60***	.36***	(.81)

Note. Coefficient alphas appear across the diagonal in parentheses.
* $p < .05$. *** $p < .001$.

vation was distinct from job satisfaction. A two-factor model with the prosocial motivation items loading on one factor and the intrinsic motivation and job satisfaction items loading together on the second factor did not fit the data well, $\chi^2(53, N = 140) = 188.08$, $NFI = .84$, $NNFI = .85$, $CFI = .88$, $SRMR = .076$. The expected three-factor model displayed good fit, $\chi^2(51, N = 140) = 113.79$, $NFI = .90$, $NNFI = .93$, $CFI = .94$, $SRMR = .046$, which supported the empirical distinctiveness of intrinsic motivation and job satisfaction. A chi-square difference test showed that the model fit improved substantially from the two-factor to three-factor model, $\chi^2(2, N = 140) = 74.29, p < .001$.

Predicting Performance and Productivity

I used hierarchical ordinary least squares regression analyses to examine whether the prosocial-intrinsic motivation interaction significantly predicted performance and productivity, following the same procedures as in Study 1. I mean-centered the prosocial and intrinsic motivation variables and multiplied the two centered variables to create a continuous interaction term. The results of these analyses indicated that neither prosocial motivation nor intrinsic motivation independently predicted performance or productivity. However, the interaction between prosocial and intrinsic motivations was a significant predictor of both performance and productivity (see Table 2, first two columns). To facilitate the interpretation of these results, I plotted the simple slopes for the relationship of prosocial motivation with performance (see Figure 2) and productivity (see Figure 3) at one standard deviation above and below the mean of intrinsic motivation. Prosocial motivation was positively associated with performance when intrinsic motivation was high ($\beta = .41$) but not low ($\beta = .00$). Prosocial motivation was also positively associated with productivity when intrinsic motivation was high ($\beta = .31$) but not low ($\beta = -.20$). Callers with high levels of both prosocial and intrinsic motivations averaged 51.82 calls and \$510.58 in donations as compared with an average of 40.26 calls and \$308.10 in donations for the other

Table 2
Study 2 Regressions for Performance, Productivity, and Mediated Moderation

Variable	Performance		Productivity Step 1		Productivity Step 2	
	β	$t(136)$	β	$t(136)$	β	$t(135)$
Prosocial motivation	.110	1.09	.090	0.92	.002	0.02
Intrinsic motivation	.030	0.31	.130	1.36	.080	0.93
Prosocial Motivation \times Intrinsic Motivation	.280	3.31**	.290	3.41**	.090	1.25
Performance					.450	5.97***
Performance \times Intrinsic Motivation					.230	2.85**

Note. The explained variance was $r^2 = .09$ for performance ($f^2 = .10$), $r^2 = .11$ for productivity in Step 1 ($f^2 = .12$), and $r^2 = .41$ for productivity in Step 2 ($f^2 = .69$).
** $p < .01$. *** $p < .001$.

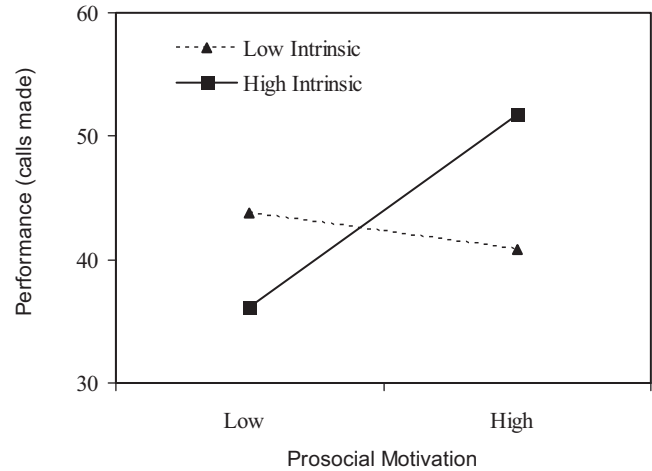


Figure 2. Study 2 regression slopes for performance.

callers. Thus, intrinsic motivation moderated (strengthened) the association between prosocial motivation and performance and productivity.

Mediated Moderation Analyses

I conducted supplementary analyses to examine whether performance mediated the association between prosocial-intrinsic motivation interaction and productivity, following the procedures for mediated moderation recommended by Muller, Judd, and Yzerbyt (2005). The first criterion, for the interaction between the moderator and the independent variable to significantly predict the dependent variable, was met by prior analyses showing that the interaction between prosocial and intrinsic motivations significantly predicted productivity. The second criterion, for the interaction between the moderator and the independent variable to significantly predict the mediator, was also met by prior analyses showing that the interaction between prosocial and intrinsic motivations significantly predicted performance. The third criterion, for the mediator to significantly predict the dependent variable

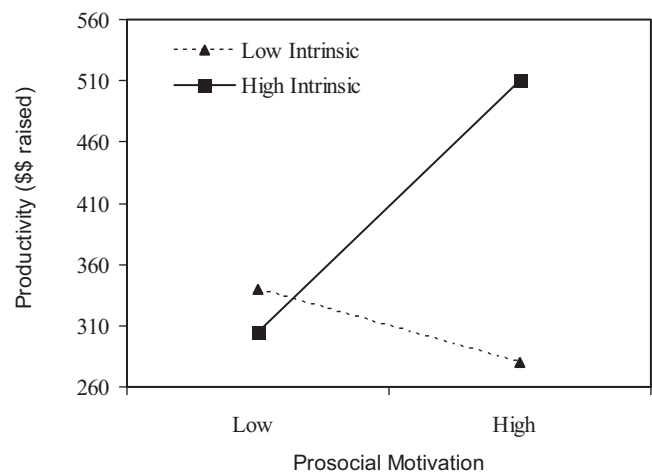


Figure 3. Study 2 regression slopes for productivity.

while controlling for the interactions between the moderator and the independent variable and between the moderator and the mediator, was met by an additional regression analysis. Performance significantly predicted productivity while controlling for the two interaction terms (see Table 2, third column). Finally, the association between the independent variable and the dependent variable decreased significantly after entering the mediator, as the association between the prosocial–intrinsic motivation interaction and productivity decreased from $\beta = .29, p = .001$ to $\beta = .09, p = .21$ (see Table 2, second and third columns). A Sobel test using the critical values recommended by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) showed that this decrease was statistically significant, $z' = 3.68, p < .01$. Thus, performance mediated the relationship between the prosocial–intrinsic motivation interaction and productivity.

Job Satisfaction Analyses

Finally, I examined job satisfaction as an alternative explanation for the results by conducting moderated regression analyses predicting the two dependent variables from the interactions of prosocial motivation with both intrinsic motivation and job satisfaction. The results, which are displayed in Table 3, show that intrinsic motivation, but not job satisfaction, interacted with prosocial motivation to predict both performance and productivity. Thus, it appears that the specific experience of intrinsic motivation, rather than the more general positive attitude of job satisfaction, is responsible for the moderating patterns observed.

Discussion

These findings build on and complement the results from Study 1, which showed that intrinsic motivation strengthened the association between prosocial motivation and persistence in firefighting. Study 2 extended this key finding to the domain of effectiveness, supporting the role of intrinsic motivation in strengthening the association between prosocial motivation and performance productivity in fundraising. Moreover, performance mediated the interactive relationship between prosocial and intrinsic motivations and productivity, and the moderating pattern was unique to intrinsic motivation—it did not hold for job satisfaction. The two

studies thereby provide convergent support for the role of intrinsic motivation in strengthening the association between prosocial motivation and persistence, performance, and productivity.

General Discussion

A core question in motivation research concerns what drives employees to persist in their tasks toward effective performance and productivity. Although recent research has pointed to prosocial motivation as an important answer to this question, little research has examined its boundary conditions. I drew on self-determination theory to propose that prosocial motivation is more likely to predict persistence, performance, and productivity when it is accompanied by intrinsic motivation. Across two field studies, I found support for this hypothesis: intrinsic motivation strengthened the association between prosocial motivation and persistence, performance, and productivity in firefighting and fundraising.

Although the two studies displayed consistent results for the synergistic interaction between prosocial and intrinsic motivations, an interesting discrepancy emerged between the findings for intrinsic motivation as an independent predictor of the outcome variables. Intrinsic motivation independently predicted the number of overtime hours that firefighters worked in Study 1 but did not independently predict the performance and productivity of fundraising callers in Study 2. A plausible explanation for this discrepancy is based on differences in the variety and complexity of the work. Whereas the firefighters completed varied, complex tasks that supported intrinsic motivation, the fundraising callers completed comparatively repetitive, simple tasks that offered limited opportunities for intrinsic motivation. Firefighters experienced higher levels of intrinsic motivation ($M = 6.09, SD = 0.77$) than fundraising callers ($M = 3.76, SD = 1.54$), increasing the likelihood that intrinsic motivation would influence their behaviors (e.g., Steel & König, 2006). This interpretation is consistent with evidence that intrinsic motivation is difficult to sustain in repetitive tasks (Hackman & Oldham, 1976) and more likely to increase effort in varied than repetitive tasks (Koestner & Losier, 2002).

The two studies also revealed a surprising trend: a negative relationship between prosocial motivation and the outcomes of persistence (Study 1) and productivity (Study 2) when intrinsic motivation was low. A likely theoretical explanation for this trend suggested earlier is that when intrinsic motivation is low, the experience of pushing oneself to complete the task in the absence of enjoyment leads to stress and overload (e.g., Bolino & Turnley, 2005). From this perspective, prosocial motivation without intrinsic motivation may deplete employees' psychological resources for self-regulation (Muraven & Baumeister, 2000), leading to exhaustion and thereby decreased persistence and productivity.

Theoretical Contributions

This article helps to resolve conflicting results about the role of prosocial motivation in persistence, performance, and productivity. Together, the results for firefighters and fundraisers suggest that prosocial motivation is most likely to contribute to these outcomes when it is accompanied by high levels of intrinsic motivation. In the absence of intrinsic motivation, however, prosocial motivation may not be sufficient to enhance persistence, performance, and productivity. These findings highlight intrinsic motivation as an

Table 3
Study 2 OLS Regressions Predicting Performance and Productivity With Job Satisfaction

Variable	Performance		Productivity	
	β	$t(134)$	β	$t(134)$
Prosocial motivation	.11	1.07	.08	0.84
Intrinsic motivation	-.01	-0.07	.08	0.72
Prosocial Motivation \times Intrinsic Motivation	.26	2.29*	.32	2.84**
Job satisfaction	.07	0.64	.09	0.89
Prosocial Motivation \times Job Satisfaction	.03	0.25	-.05	-0.45

Note. The explained variance was $r^2 = .09$ for performance ($f^2 = .10$) and $r^2 = .12$ for productivity ($f^2 = .13$). OLS = ordinary least squares.
* $p < .05$. ** $p < .01$.

important boundary condition for the benefits of prosocial motivation, advancing existing knowledge about the conditions under which prosocial motivation is likely to contribute to desirable employee behaviors. These findings also accentuate the value of conceptualizing prosocial motivation in terms of varying degrees of autonomous regulation, rather than studying prosocial motivation as a unitary construct, as has been common in prior research. For example, Rioux and Penner's (2001) measure of prosocial motives included items such as "To have fun with my coworkers," "Because I like interacting with my coworkers," and "Because I feel it is important to help those in need." These items appear to capture a relatively intrinsic or identified, rather than introjected, form of prosocial motivation. In contrast, the items utilized here allowed for prosocial motivation to vary independently with intrinsic motivation, making it possible to examine whether the association between prosocial motivation and persistence, performance, and productivity outcomes is contingent on intrinsic motivation.

Further, by examining prosocial and intrinsic motivations in tandem, this article offers two central contributions to self-determination theory and research. First, the findings expand current understandings of the interactions between intrinsic motivation and other forms of self-regulation, an important but largely neglected issue in psychological and organizational research. Self-determination theory has traditionally treated different forms of self-regulation as mutually exclusive, with little attention to interactions among them (Gagné & Deci, 2005). In contrast, I have argued that employees experience prosocial motivation as a form of identified regulation when intrinsic motivation is high and experience prosocial motivation as a form of introjected regulation when intrinsic motivation is low. The findings across the two studies regarding the interactions between intrinsic and prosocial motivations thereby provide new insights into the potential synergy between intrinsic and identified forms of self-regulation. It appears that the combination of enjoying the process and valuing the outcome can enable higher levels of persistence, performance, and productivity. These results thus provide empirical support for theoretical perspectives proposing that intrinsic motivation can interact constructively with other forms of motivation (Amabile, 1993; Gagné & Deci, 2005; Staw, 1977).

The second contribution to self-determination theory lies in integrating research on intrinsic and prosocial motivations. Whereas researchers have primarily studied prosocial and intrinsic motivations in separate literatures, I have taken conceptual and empirical steps to clarify the nature of and relationship between prosocial and intrinsic motivations. Conceptually, the theoretical development differentiates between the two motivations in terms of self-regulation (introjected/identified vs. autonomous), goal directedness (outcome vs. process), and temporal focus (future vs. present). Empirically, the results demonstrate that the two motivations are positively related but clearly distinguishable and that they can thereby interact to predict important outcomes in organizational life. This attention to prosocial motivation takes a step toward contextualizing intrinsic motivation research. The vast majority of intrinsic motivation research has been conducted in laboratories with individuals working on isolated, independent tasks (Ambrose & Kulik, 1999). As Shamir (1990, p. 321) wrote, "A more social concept of intrinsic motivation is needed." Consistent with this recommendation, my research focused on individ-

uals working in social, interdependent contexts on tasks that affected the welfare of other people. The examination of both intrinsic and prosocial motivations in these contexts answers recent calls to move beyond task-focused and self-focused motivation perspectives toward more other-focused, relational motivation perspectives (Grant, 2007; Meglino & Korsgaard, 2004; Shamir, 1991).

Limitations and Future Directions

The studies are subject to several limitations that can be addressed in further research. First, although the use of temporally delayed outcome variables strengthens causal inferences, to provide more conclusive evidence about causal relationships, it is necessary for future research to experimentally manipulate prosocial and intrinsic motivations and/or utilize cross-lagged longitudinal designs that measure motivations and outcomes together at multiple time intervals. Second, I did not directly assess the proposed mechanism for explaining the results—that intrinsic motivation influences whether prosocial motivation is experienced as identified or introjected regulation. It will be important for future research to investigate psychological mechanisms that mediate the link between prosocial and intrinsic motivations and persistence, performance, and productivity. For example, it may be the case that when prosocial motivation is low but intrinsic motivation is high, employees' attempts to force themselves to engage in the task lead to cognitive interference that undermines their abilities to perform effectively (e.g., Bazerman et al., 1998; Beal, Weiss, Barros, & MacDermid, 2005). This mechanism may complement persistence in explaining the association between the interaction of prosocial and intrinsic motivations and the outcomes of performance and productivity. Third, I was not able to control for other established predictors of persistence, performance, and productivity, such as conscientiousness, perceived job characteristics, and positive affect; I suggest that future research include these types of control variables to examine the relative contributions of intrinsic and prosocial motivations to the outcomes of interest.

Finally, the use of self-report measures of prosocial and intrinsic motivations at single points in time raises questions about whether employees' responses reflect enduring orientations, temporary states, or both (e.g., Amabile et al., 1994). Assessing the two motivations as both enduring orientations and temporary states using experience-sampling and daily diary methodologies will provide insight into this issue by illuminating the relative roles of between-individual and within-individual variations in predicting outcomes. Such designs will also help to adjudicate claims that multiple motivations cannot coexist in the same moment (Apter, 1984; Kuhl, 1992). Also potentially worthwhile are implicit measures of the motivations, which may transcend some of the limitations of explicit self-reports (Schultheiss & Brunstein, 2001).

Practical Implications and Conclusion

The findings across the two studies have important practical implications. The results suggest that employees display higher levels of persistence, performance, and productivity when they experience prosocial and intrinsic motivations in tandem. Managers may draw on these findings to tailor selection and socialization practices toward prosocial and intrinsic motivations. From a se-

lection standpoint, managers may measure prosocial and intrinsic motivational orientations to hire employees who display dispositional tendencies to experience high levels of both motivations. From a socialization standpoint, managers may design work contexts to cultivate both prosocial and intrinsic motivations. For example, task significance is thought to enhance intrinsic motivation (Hackman & Oldham, 1976), but because task significance provides opportunities to benefit others, it may simultaneously enhance prosocial motivation (Grant, 2008). Similarly, empowerment interventions are thought to increase intrinsic motivation (Thomas & Velthouse, 1990), but because they provide employees with expanded opportunities to contribute and have an impact, they may simultaneously increase prosocial motivation. Thus, the knowledge that both prosocial and intrinsic motivations play a significant role in persistence, performance, and productivity may motivate managers to both select and socialize these motivations, with the potential to increase effectiveness outcomes.

In conclusion, E. B. White wrote, "I arise every morning torn between the desire to improve the world and the desire to enjoy it. This makes it hard to plan the day" (Kennedy, 2006). In contrast, the findings presented here suggest that employees who experience the desire to both improve and enjoy the world are motivated to act, persisting in completing their tasks effectively and productively. By suggesting that synergy between prosocial and intrinsic motivations may enhance persistence, performance, and productivity, this article advances existing theory, research, and practice related to work motivation.

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Alonso, P., & Lewis, G. B. (2001). Public service motivation and job performance: Evidence from the public sector. *American Review of Public Administration, 31*, 363–380.
- Amabile, T. M. (1993). Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review, 3*, 185–201.
- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The Work Preference Inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66*, 950–967.
- Ambrose, M. L., & Kulik, C. T. (1999). Old friends, new faces: Motivation in the 1990s. *Journal of Management, 25*, 231–292.
- Apter, M. J. (1984). Reversal theory and personality: A review. *Journal of Research in Personality, 18*, 265–288.
- Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic? In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 65–122). New York: Academic Press.
- Batson, C. D. (1998). Altruism and prosocial behavior. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 282–316). New York: McGraw-Hill.
- Bazerman, M. H., Tenbrunsel, A. E., & Wade-Benzoni, K. (1998). Negotiating with yourself and losing: Making decisions with competing internal preferences. *Academy of Management Review, 23*, 225–241.
- Beal, D. J., Cohen, R. R., Burke, M. R., & McLendon, C. L. (2003). Cohesion and performance in groups: A meta-analytic clarification of construct relations. *Journal of Applied Psychology, 88*, 989–1004.
- Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. (2005). An episodic process model of affective influences on performance. *Journal of Applied Psychology, 90*, 1054–1068.
- Belsley, D. A., Kuh, E., & Welsch, R. E. (1980). *Regression diagnostics: Identifying influential data and sources of collinearity*. New York: John Wiley.
- Bentler, P. M. (1995). *EQS structural equations program manual*. Encino, CA: Multivariate Software.
- Bentler, P. M., & Dudgeon, P. (1996). Covariance structure analysis: Statistical practice, theory, and directions. *Annual Review of Psychology, 47*, 563–592.
- Bing, M. N., & Burroughs, S. M. (2001). The predictive and interactive effects of equity sensitivity in teamwork-oriented organizations. *Journal of Organizational Behavior, 22*, 271–290.
- Blumberg, M., & Pringle, C. D. (1982). The missing opportunity in organizational research: Some implications for a theory of work performance. *Academy of Management Review, 7*, 560–569.
- Bolino, M. C., & Turnley, W. H. (2005). The personal costs of citizenship behavior: The relationship between individual initiative and role overload, job stress, and work-family conflict. *Journal of Applied Psychology, 90*, 740–748.
- Bono, J. E., & Judge, T. A. (2003). Self-concordance at work: Toward understanding the motivational effects of transformational leaders. *Academy of Management Journal, 46*, 554–571.
- Brewer, G. A., & Selden, S. C. (1998). Whistle blowers in the federal civil service: New evidence of the public service ethic. *Journal of Public Administration Research and Theory, 8*, 413–439.
- Brief, A. P., & Aldag, R. J. (1977). The intrinsic-extrinsic dichotomy: Toward conceptual clarity. *Academy of Management Review, 2*, 496–500.
- Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 687–732). Palo Alto, CA: Consulting Psychologists Press.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (Eds.). (1988). *Optimal experience: Psychological studies of flow in consciousness*. New York: Cambridge University Press.
- Cunningham, M. R., Steinberg, J., & Grey, R. (1980). Wanting to and having to help: Separate motivations for positive mood and guilt-induced helping. *Journal of Personality and Social Psychology, 38*, 181–192.
- deCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York: Academic Press.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105–115.
- Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*, 627–668.
- Deci, E. L., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- De Dreu, C. K. W. (2006). Rational self-interest and other orientation in organizational behavior: A critical appraisal and extension of Meglino and Korsgaard (2004). *Journal of Applied Psychology, 91*, 1245–1252.
- Dowling, W. F., & Sayles, L. R. (1978). *How managers motivate: The imperatives of supervision*. New York: McGraw-Hill.
- Dweck, C. S., & Gilliard, D. (1975). Expectancy statements as determinants of reactions to failure: Sex differences in persistence and expectancy change. *Journal of Personality and Social Psychology, 32*, 1077–1084.
- Eisenberger, R., Cummings, J., Armeli, S., & Lynch, P. (1997). Perceived organizational support, discretionary treatment, and job satisfaction. *Journal of Applied Psychology, 82*, 812–820.
- Fox, J. (1991). *Regression diagnostics*. Thousand Oaks, CA: Sage.

- Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion, 27*, 199–223.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26*, 331–362.
- George, J. M. (1991). State or trait: Effects of positive mood on prosocial behaviors at work. *Journal of Applied Psychology, 76*, 299–307.
- Grant, A. M. (2007). Relational job design and the motivation to make a prosocial difference. *Academy of Management Review, 32*, 393–417.
- Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology, 93*, 108–124.
- Grant, A. M., Campbell, E. M., Chen, G., Cottone, K., Lapedis, D., & Lee, K. (2007). Impact and the art of motivation maintenance: The effects of contact with beneficiaries on persistence behavior. *Organizational Behavior and Human Decision Processes, 103*, 53–67.
- Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (in press). Agreeableness, empathy, and helping: A Person \times Situation perspective. *Journal of Personality and Social Psychology*.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16*, 250–279.
- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal, 49*, 305–325.
- Heath, C. (1999). On the social psychology of agency relationships: Lay theories of motivation overemphasize extrinsic incentives. *Organizational Behavior and Human Decision Processes, 78*, 25–62.
- Herzberg, F. (1966). *Work and the nature of man*. Cleveland, OH: World Publishing.
- Herzberg, F., Mausner, B., & Snyderman, B. B. (1967). *The motivation to work* (2nd ed.). New York: Wiley.
- Ilie, R., Scott, B. A., & Judge, T. A. (2006). The interactive effects of personal traits and experienced states on intraindividual patterns of citizenship behavior. *Academy of Management Journal, 49*, 561–575.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692–724.
- Kehr, H. M. (2004). Integrating implicit motives, explicit motives, and perceived abilities: The compensatory model of work motivation and volition. *Academy of Management Review, 29*, 479–499.
- Kennedy, E. M. (2006, May 14). *Commencement address of Senator Edward M. Kennedy at Springfield College*. Retrieved December 21, 2006, from <http://kennedy.senate.gov/newsroom/speech.cfm?id=88f8cc0c-c49e-4832-a663-142c328c9968>
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Koestner, R., & Losier, G. F. (2002). Distinguishing three ways of being internally motivated: A closer look at introjection, identification, and intrinsic motivation. In E. L. Deci, & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 101–121). Rochester, NY: University of Rochester Press.
- Konovsky, M. A., & Organ, D. W. (1996). Dispositional and contextual determinants of organizational citizenship behavior. *Journal of Organizational Behavior, 17*, 253–266.
- Korsgaard, M. A., Meglino, B. M., & Lester, S. W. (1997). Beyond helping: Do other-oriented values have broader implications in organizations? *Journal of Applied Psychology, 82*, 160–177.
- Kuhl, J. (1992). A theory of self-regulation: Action versus state orientation, self-discrimination, and some applications. *Applied Psychology: An International Review, 41*, 97–129.
- Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology, 56*, 495–516.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*, 83–104.
- McCloy, R. A., Campbell, J. P., & Cudeck, R. (1994). A confirmatory test of a model of performance determinants. *Journal of Applied Psychology, 79*, 493–505.
- McGregor, D. (1960). *The human side of the enterprise*. New York: McGraw-Hill.
- McGregor, I., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology, 74*, 494–512.
- Meglino, B. M., & Korsgaard, M. A. (2004). Considering rational self-interest as a disposition: Organizational implications of other orientation. *Journal of Applied Psychology, 89*, 946–959.
- Mitchell, T. R., & Daniels, D. (2003). Motivation. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology, Vol. 12: Industrial and organizational psychology* (pp. 225–254). New York: John Wiley.
- Motowidlo, S. J. (2003). Job performance. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology, Vol. 12: Industrial and organizational psychology* (pp. 39–53). Hoboken, NJ: John Wiley & Sons.
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology, 89*, 852–863.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*, 247–259.
- Naff, K. C., & Crum, J. (1999). Working for America: Does public service motivation make a difference? *Review of Public Personnel Administration, 19*, 5–16.
- Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology, 56*, 365–392.
- Perry, J. L., & Hondeghem, A. (Eds.). (in press). *Public service motivation: State of the science and art*. Oxford, United Kingdom: Oxford University Press.
- Peterson, N. G., Borman, W. C., Mumford, M. D., Jeannerete, P. R., & Fleishman, E. A. (1999). *An occupational information system for the 21st century: The development of O*NET*. Washington, DC: APA.
- Porter, L. W., & Lawler, E. E. III. (1986). *Managerial attitudes and performance*. Homewood, IL: Richard D. Irwin.
- Quinn, R. P., & Shepard, L. G. (1974). *The 1972–1973 quality of employment survey*. Ann Arbor: Institute for Social Research, University of Michigan.
- Quinn, R. W. (2005). Flow in knowledge work: High performance experience in the design of national security technology. *Administrative Science Quarterly, 50*, 610–641.
- Rioux, S. M., & Penner, L. A. (2001). The causes of organizational citizenship behavior: A motivational analysis. *Journal of Applied Psychology, 86*, 1306–1314.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*, 749–761.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78.
- Ryan, R. M., & Deci, E. L. (2001). To be happy or to be self-fulfilled: A review of research on hedonic and eudaimonic well-being. In S. Fiske (Ed.), *Annual review of psychology* (Vol. 52, pp. 141–166). Palo Alto, CA: Annual Reviews.
- Sandelands, L. E., Brockner, J., & Glynn, M. A. (1988). If at first you don't succeed, try, try again: Effects of persistence-performance contingencies.

- cies, ego involvement, and self-esteem on task persistence. *Journal of Applied Psychology*, 73, 208–216.
- Schmidt, F. L., & Hunter, J. E. (1983). Individual differences in productivity: An empirical test of estimates derived from studies of selection procedure utility. *Journal of Applied Psychology*, 68, 407–414.
- Schultheiss, O. C., & Brunstein, J. C. (2001). Assessment of implicit motives with a research version of the TAT: Picture profiles, gender differences, and relations to other personality measures. *Journal of Personality Assessment*, 77, 71–86.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1–65). San Diego, CA: Academic Press.
- Shamir, B. (1990). Calculations, values, and identities: The sources of collectivistic work motivation. *Human Relations*, 43, 313–332.
- Shamir, B. (1991). Meaning, self and motivation in organizations. *Organization Studies*, 12, 405–424.
- Sheldon, K. M., Arndt, J., & Houser-Marko, L. (2003). In search of the organismic valuing process: The human tendency to move towards beneficial goal choices. *Journal of Personality*, 71, 835–869.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need-satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482–497.
- Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment and the pursuit of happiness: Can there be an upward spiral? *Journal of Personality and Social Psychology*, 80, 152–165.
- Staw, B. M. (1977). Motivation in organizations: Toward synthesis and redirection. In B. M. Staw & G. Salancik (Eds.), *New directions in organizational behavior*. (pp. 55–95) Chicago: St. Clair.
- Steel, P., & König, C. J. (2006). Integrating theories of motivation. *Academy of Management Review*, 31, 889–913.
- Steers, R., Mowday, R., & Shapiro, D. (2004). The future of work motivation theory. *Academy of Management Review*, 29, 379–387.
- Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An “interpretive” model of intrinsic task motivation. *Academy of Management Review*, 15, 666–681.
- Thompson, J. A., & Bunderson, J. S. (2003). Violations of principle: Ideological currency in the psychological contract. *Academy of Management Review*, 28, 571–586.
- Warr, P. (2007). *Work, happiness, and unhappiness*. Mahwah, NJ: Erlbaum.
- Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology*, 64, 678–691.
- Weiss, H. M. (2002). Deconstructing job satisfaction: Separating evaluations, beliefs and affective experiences. *Human Resource Management Review*, 12, 173–194.
- Wrzesniewski, A., McCauley, C. R., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People’s relations to their work. *Journal of Research in Personality*, 31, 21–33.

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